Building an Integrated FSUTMS / Land Use Model Framework

presented to
Florida Model Task Force

presented by
Wade White

December 1, 2010

Working Group Members

LU Working Group

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Working Sessions

- **Basic Approaches to Land Use Models Employed throughout the US** (February 19, 2010): Dr. Zhong-Ren Peng of the University of Florida and Dr. Michael Clay of Auburn University


- **Transport Accessibility and Other Measures** (March 26, 2010): Wade White of Whitehouse Group

- **Feedback - Concepts & Implications** (April 16, 2010): Wade White of Whitehouse Group

- **Real-world Experiences in Policy Evaluation** (April 30, 2010): Gordon Garry of the Sacramento Area Council of Governments (SACOG) and Becky Knudson of the Oregon DOT

- **Policy Sensitivities** (May 7, 2010): Kathleen Neill of the FDOT Office of Policy Planning with representatives from the Florida Department of Environmental Protection and Department of Community Affairs in attendance


- **Developing Recommendations**
  - Resources, scheduling and how this might fit into the overall planning program (June 18, 2010)
  - Relative costs/benefits of various approaches used elsewhere and how well each might fit Florida’s needs (July 9, 2010)
  - Recommendations for a specification and approach (July 16, 2010)
The Group Considered

- Frameworks
- Degree of Integration
- Policy Considerations
- Costs
  - New Data Collection & Processing
  - Time to Develop & Implement
  - Staff Time and Training
  - Run time
  - Initial & Recurring Costs
- Implementation Schedule

Observations from Other Areas ...

- Not a “one shot” deal
- Still evolving
- Costs are decreasing and benefits are increasing
- Experience is expanding
- Pretty much “a given” that some process is necessary
  - AMPO
  - TRB
  - Legislative Mandates
To Finalize the Program

- **When?**
  - ASAP?
  - Census Coordination
  - Long-term vs. Short-term Approaches

- **How?**
  - Pilot
  - Full-bore

- **Where?**
  - Geographic Resolution Goal
  - Pilot

- **Other Coordination**
  - DOR/DCA/Local

Conclusions & Recommendations

- **Go/No Go**
  - 100% concurrence that an integrated modeling platform should be a part of FSUTMS

- **Full Integration with FSUTMS**
  - Just sharing common data between the land use and transportation forecasts or whether the process should be fully automated was about equally split
  - Any process evaluated should be adaptable to either approach
Conclusions & Recommendations

**Theoretical Framework**
- A sound framework is a critical item in the overall specification of the integrated model.
- The case of one framework vs. any other not convincing in and of itself—i.e. one was not inherently better than another.
- Framework(s) should be sensitive to local differences.
  - Should be supported empirically on a case-by-case basis until the case is made that a single theoretical framework would be appropriate for all areas in Florida.

**Policy Adherence**
- Critical element of the framework.
- How strictly the model assesses policies should be adjustable so that it could be adjusted to meet different needs.
- Should be able to evaluate:
  - Transport
    - Automobile / Road
    - Transit
    - Freight
  - Land Use
    - Households
    - Economic Development
    - Job Locations
  - Impact Assessment
- Should be able to address small or large scale public visioning evaluations.

**Conclusions & Recommendations**

**Relative Ease of Use**
- Three areas should be addressed important to its overall success:
  - Calibration
  - Testing
  - Visioning
- Must be easy use for charrettes.

**GIS Integration**
- GIS integration is a critical.
- Working with enterprise GIS data is critical and any proposed platform should also support enterprise GIS data for both input and for output analyses.

**Adaptability**
- A critical feature of any integrated modeling platform.

**Comprehensibility**
- Zonal Data
- Other Inputs and Outputs
- Good Error Reporting and Diagnostics
- Ability to Communicate Results to the Public and Elected Officials
- Ability to compare different alternatives
- Of the desirable features, only the ability to produce 3-D animations was ranked as “low” importance—can be post-processed.
Conclusions & Recommendations

Available Support
- Formal software developer support is critical
- An “open source”-styled user community supported was ranked as relatively unattractive
- Support should not be “contract-to-contract” but be managed at a statewide level
- Complicated framework as less useful and less viable in the long-run

Data Reliance
- Should be built on publically available data but be able to be tailored based on locally collected data to reflect local anomalies
- Coordinating development of the model with other statewide data development efforts is important
- FDOT should coordinate with the Department of Revenue (DOR) to develop a consistent set of standards for data and formats that could be applied to existing and future land use data

Staff Time
- The amount of time to build and implement an integrated model is not as important as the time necessary to train staff and maintain the model

Price
- Sensitive to the price of entry and maintenance of an integrated platform
- Cost of development could likely be minimized through “borrowing” a model platform

Time and Recurring Costs
- “Reasonable” run times and cost important
- Time and costs associated with developing and implementing less important

Implementation Schedule
- Full implementation by the next round of long-range plans is not critical for an analytical-based model
- Having a model suitable to visioning would be very helpful
Basic Implementation Plan

- Conduct Pilot Study
  - Finalize MTF Expert Task Group
  - Identify Potential Pilot Study Candidate(s)
  - Identify Research Team
  - Screen Suitable Land Use Models
  - Implement Pilot Study
  - Assess Pilot Study
  - Present Pilot Study Findings to MTF, MPO-AC and FDOT Leadership

- Refine Implementation Plan & Budget

- Develop FSUTMS Add-on Package
  - Develop Training Materials
  - Roll Out FSUTMS Update

Schedule
Budget & Funding Opportunities

- **Budget**
  - Pilot Study ~ $300k-$600k
  - Acquisition, Development, Integration, Testing, Training ~ $300k

- **Leveraging Funding**
  - Limited State & Local Funding
  - Approaches
    - Pursue Federal Funding
      - FHWA
      - EPA
      - HUD
    - Piggy-back on Other Efforts
      - MPO
      - RPC
      - FDOT Projects & Research

Next Steps

- **MTF Concurrence to Move Forward on Phase II**
  - Tasks
  - Budget
  - Schedule

- **Identify**
  - Funding & Piggyback Opportunities
  - Candidate Pilot Study Sites
  - Establish MTF Oversight Group